ELECTRONIC PANEL

FOR ALARMS, SECURITIES AND ENGINE CONTROL

CM30 GE3B

Series

USER'S MANUAL

PINE s.r.l.

INDEX

1.INTRODUCTION 3

2.INSTALLATION 3

3.GENERAL FEATURES 4

4.KEYS FUNCTIONS 4

5.WARNING LAMPS 4

6.PANEL SWITCH-ON 5

7.ENGINE RUN 5

8.ENGINE STOP 6

9.OUTPUTS (FOR REMOTE CONTROL) 6

10.ALARM CONDITONS 6

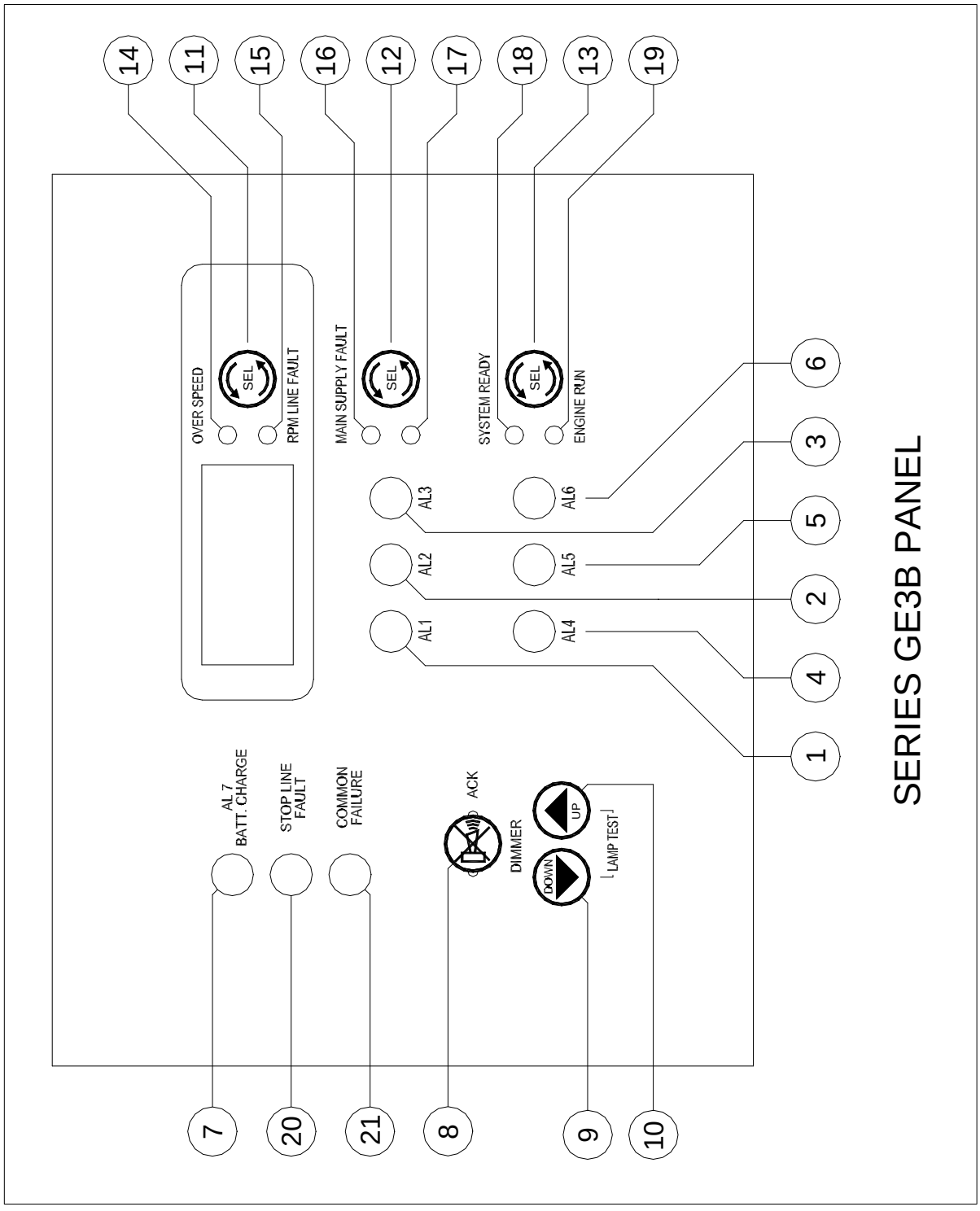
11.ALARM CIRCUITS FAULT 7

12.PANEL SET-UP 7

13.ENGINE PLANT ANOMALIES 10

14.CONFORMITY DECLARATION 11

15.TECHNICAL SPECIFICATIONS 11


14
11
15
16
12
17
18
13
19
OVER SPEED
SEL
RPM LINE FAULT
MAIN SUPPLY FAULT
SEL
SYSTEM READY
SEL
ENGINE RUN
AL3
AL2
AL1
AL6
AL5
AL4
6
3
5
2
4
1
AL 7
BATT. CHARGE
STOP LINE FAULT
COMMON FAILURE
ACK
DIMMER
UP
DOWN
LAMP TEST
7
20
21
8
9
10
SERIES GE3B PANEL

1. INTRODUCTION

CM30-GE3B is an engine control panel for alarms and securities management, controlled by a microprocessor. It is particularly meant for combustion engines and disposes of inputs and outputs for interfacing to the control and monitoring main system.

A polycarbonate front, mounted on an aluminium support, protects control and visualization part: it describes all the GE30-GE3B functions, can be personalized on demand and realized in any desired language. The rear is in painted metal and connectors to the plant are of the type with mechanical block.

All functions performed by CM30-GE3B panel are intuitive and simple: the measurement and alarm set is also so simple and immediate.

CM30-GE3B deals with seven ON/OFF alarms and a frequency measurement for engine revolutions.

Alarms are managed according the ISA –1 sequence.

Intervention of each alarm can be delayed up to 240 seconds in order to avoid false signallings or commutations.

RPM input can be used to influence alarms according the engine condition and to generate the overspeed alarm (or security).

Each alarm can be separately inhibited when the engine is off or during ignition: these conditions are detected through the engine revolutions input.

A connection continuity (or short circuit) control can be activated on each alarm input generating an alarm in case of fault.

Each alarm can perform the engine stop if it is used as a security.

"Inhibited securities", S5 input, allows deactivating the engine stop function for all the alarms apart from the overspeed alarm.

CM30-GE3B has two supply input: a main supply and a secondary one with optional battery charge. In case of a main supply fault an alarm will be generated (16); this alarm cannot be used as security.

2. INSTALLATION

CM30-GE3B series engine control panels can be placed on the ship's pilot bridge or on a board. Cutting for a proper assembly is shown in D4 drawing.

ALARMS – FAULTS -AUTOMATIC STOP TEST

It is possible to test the correct working of alarms (inactive when engine is regularly running) by simulating their activation. Regarding securities, test their intervention simulating an alarm both when engine is off and running.
In order to simulate faults at N.O. contacts it is sufficient to keep the connection wire

unconnected.
You need an engine revolutions simulator to test the overspeed alarm condition; otherwise it is sufficient to decrease the alarm thresholds by set-up in order to generate an alarm at a low rate value. **After test restore alarm thresholds at the original value.**
If dual supply is present unconnect the main supply in order to test the main supply fault alarm.
Remember that each alarm will be signalled with the set delay time.

NOTE: it is advisable to test all alarms.

3. GENERAL FEATURES

- 15 alarm and fault or other signallings warning lamps;
- Alarms acknowledgment/silencing key;
- Lamp test (by simultaneously pressing (9) and (10) keys;
- Dimmerable brightness;
- 7 inputs for alarms/securities with continuity (or short circuit) control;
- 1 frequency input for engine revolutions measurement with continuity control;
- "Electrostop connection continuity control" input
- Input for remote silencing (remote muting);
- Management of the following command inputs:
  - "Connected/unconnected securities" input
  - "Remote engine stop command" input
- Outputs:
  - "Engine run" output
  - "Common failure" output
  - "System ready" output
  - "Engine stop" output
  - "Buzzer" output
  - "Alternator excitation (D+)" (if AL7 not used)
- Main and secondary supplies: from 12 up to 24Vcc (to be selected by set-up);
- Size: 162 x 134 x 100 mm;

4. KEYS FUNCTIONS

(11) used in set-up.
(12) keep pressed to display engine revolutions (x 10) / used in set-up.
(13) used in set-up.
(9) used to decrease the displays and warning lamps brightness / used in set-up
(10) used to increase the displays and warning lamps brightness / used in set-up.
(9) e (10) perform the lamp test if simultaneously pressed.
(8) used as alarm acknowledgment/silencing according to ISA-1 sequence / used in set-up.

5. WARNING LAMPS

(1) AL1 warning lamp concerning input contact R4.
(2) AL2 warning lamp concerning input contact R3.
(3) AL3 warning lamp concerning input contact S6.
(4) AL4 warning lamp concerning input contact R7.
(5) AL5 warning lamp concerning input contact R6.
(6) AL6 warning lamp concerning input contact S3.
(7) AL7 warning lamp concerning input contact R1 or "battery charge" warning lamp.
(20) "Stop circuit fault" warning lamp concerning input contact S8.
(21) "Common failure" warning lamp.
(14) Warning lamp for the alarm concerning engine revolutions, R9 input.
(15) Warning lamp for engine revolutions fault.
(16) Warning lamp for "Main supply fault" alarm, monitored on R2 supply input.
(17) Not used.
(18) "System ready" warning lamp, related to the corresponding output.
(19) "Engine run" warning lamp.

6. PANEL SWITCH-ON

When panel is switched on:

- One-second lamp-test is executed;
- The buzzer activates for one second;
- The "System ready" warning lamp is turned on and the corresponding output is activated;
- "On" appears on the display signalling that CM30-GE3B is turned-on.
- Inputs and outputs are managed.

7. ENGINE RUN

"Engine run" output is activated in the following two cases:

1) Engine revolutions exceed the **SoA** value for a time longer than **tEr** (values selected by set-up);
2) Engine revolutions equal zero or are lower than SoA but the low oil pressure transducer switches state as the engine was running (that is it detect that the engine oil pressure is risen up).

In order that condition 2) may happen, AL1 alarm input (R4 contact) had to be set as low (or too low) pressure alarm (see **ALP** option in set-up).
In this case CM30-GE3B panel correlates this alarm with the presence of the engine revolutions in order to estabilish if the engine is running or if there is some measurements fault or some problem in engine revolutions reading regulation.

In case 2) an **RPM LINE FAULT** is generated even if there is continuity in the engine revolutions measurement circuit.

The following table shows correlations between engine revolutions measurement and engine oil pressure; this is true only if for AL1, P4 input, the option ALP has been selected by set-up (and the corresponding circuit is not in fault).

Engine revolutions > SoA	ENGINE OIL PRESSURE (as by contact alarm)	RPM reading circuit FAULT	ENGINE RUN
RPM = 0	LOW	NO	NO

NO	**LOW**	**YES**	**NO**
NO	**HIGH**	**YES**	**YES**
YES	**LOW**	**NO**	**YES**
YES	**HIGH**	**NO**	**YES**

8. ENGINE STOP

In order to execute engine stop CM30-GE3B closes the circuit tied up to S1 and S2 contacts; a self restoring fuse protects the line by inside.

"Engine stop continuity circuit" must be directly connected to electro-stop (or to the possible re-launching relay) present on the engine. In case of continuity fault a stop circuit fault alarm will be generated.

- Engine stop has to be performed by activating "remote engine stop command" input (R8 contact) or it may happen because of any security intervention (if it is enabled). In both cases a possible running ignition phase is immediately stopped and the stop contacts are closed until the engine is motionless or however for a maximum stop time **tAA** that may be select by set-up.
- By set-up engine stop can be programmed on a threshold that can be selected on the engine revolutions measurement (overspeed). If CM30-GE3B is programmed with the overspeed security threshold, engine stop will be performed even in presence of the "deactivated securities" comand.
- If any alarm is programmed as security, its activation will cause an engine stop.

"Deactivated securities" S5 input works only with alarm/security inputs, not with engine overspeed.

9. OUTPUTS (FOR REMOTE CONTROL)

CM30-GE3B disposes of the following output signals:

- System ready (S11): indicates that the panel is supplied and works properly. Lacking of this output corresponds with the CM30-GE3B fault signalling.
- Common failure (S10): enabled by any alarm (or security) or any fault at alarm and stop connection circuit.
- Engine run (S7): indicates that the engine is running at a speed higher than a pre-selected threshold. It is enabled even if a "high engine oil pressure" signal is present.

These active low outputs are protected from short circuit and provide the necessary current to excite a relay (see technical notes).

10. ALARM CONDITONS

At “System ready”, alarms are managed according to ISA-1 sequence.
ON/OFF alarms come from transmitters with preset intervention thresholds and they can be N.O. or N.C. contacts.
Alarms input are active low so one of the two contacts of each transmitter has to be connected to the CM30-GE3B negative supply.
Connection continuity control can be enabled if contacts are of N.O. type.
Connection short circuit control can be enabled if contacts are of N.C. type.
See CM30-GE3B set-up for available options.

Regarding to ON/OFF alarms, available option are:

GoF/Gon Alarm is always enabled (GoF) or only if engine is running (Gon).

AoF/Aon automatic stop off/on.

rit alarm delay; alarm contact must remain ON for the same time as **rit** or longer, in order to be recognized as alarm condition.

Available options for overspeed alarm are:

So1 Alarm threshold
- alarm is generated if measurement exceeds the threshold value.

AoF/Aon Automatic stop off/on.

rit If alarm input remains activated for a time (in seconds) longer than **rit**, alarm condition will be recognized and managed.

“Main supply fault” alarm is activated if the main supply isn’t present. This alarm can be managed only in presence of secondary supply.

11. ALARM CIRCUITS FAULT

At “System Ready” the circuit faults are managed as alarms and so according to ISA-1 sequence.
An alarm for circuit fault is signalled by the alarm itself and by the “Common Failure” warning lamp turning on. In some cases the fault is “deduced” by an irregular behaviour of correlated measurements (see “ENGINE RUN” chapter”).

- Regarding alarms generated by ON/OFF contacts, the fault will be signalled in case of interruption of the connection circuit for N.O. contacts, and in case of short circuit of the connection circuit for N.C. contacts (see ON/OFF alarm selection code Table).
- Regarding the overspeed alarm, the fault will be signalled in case of interruption of the connection circuit and in the case 2) described in “ENGINE RUN” chapter.

12. PANEL SET-UP

Set-up allows to:

- Adjust the parameters useful for the alarms and signals generation;
- Adjust the panels to the engine specifications;

- Regulate and tare the parameters for a correct transducers working.

KEYS	FUNCTION
(11)	Choose measurements to be changed / Confirm new calibrations
(9) (10)	Move among the main-menu rows / Change values
(8)	Go to main-menu / Exit from set-up storing new data if user is in main-menu

WARNING

IF DURING SET-UP NO KEY IS PRESSED WITHIN 60 SECONDS, AUTOMATIC EXIT FROM SET-UP WILL OCCUR AND ALL CHANGES WILL BE LOST.

To enter set-up press key (11) until buzzer produces a beep and in the display appears one of the main menu options.

MAIN MENU

P r n

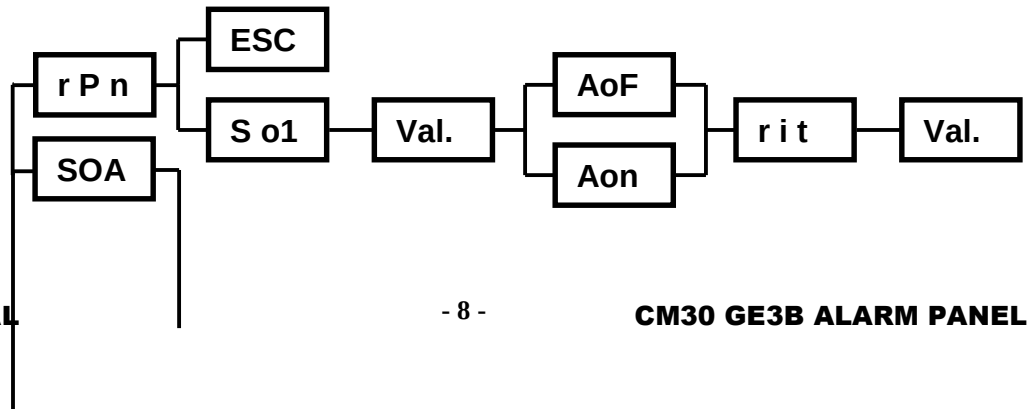
t A r

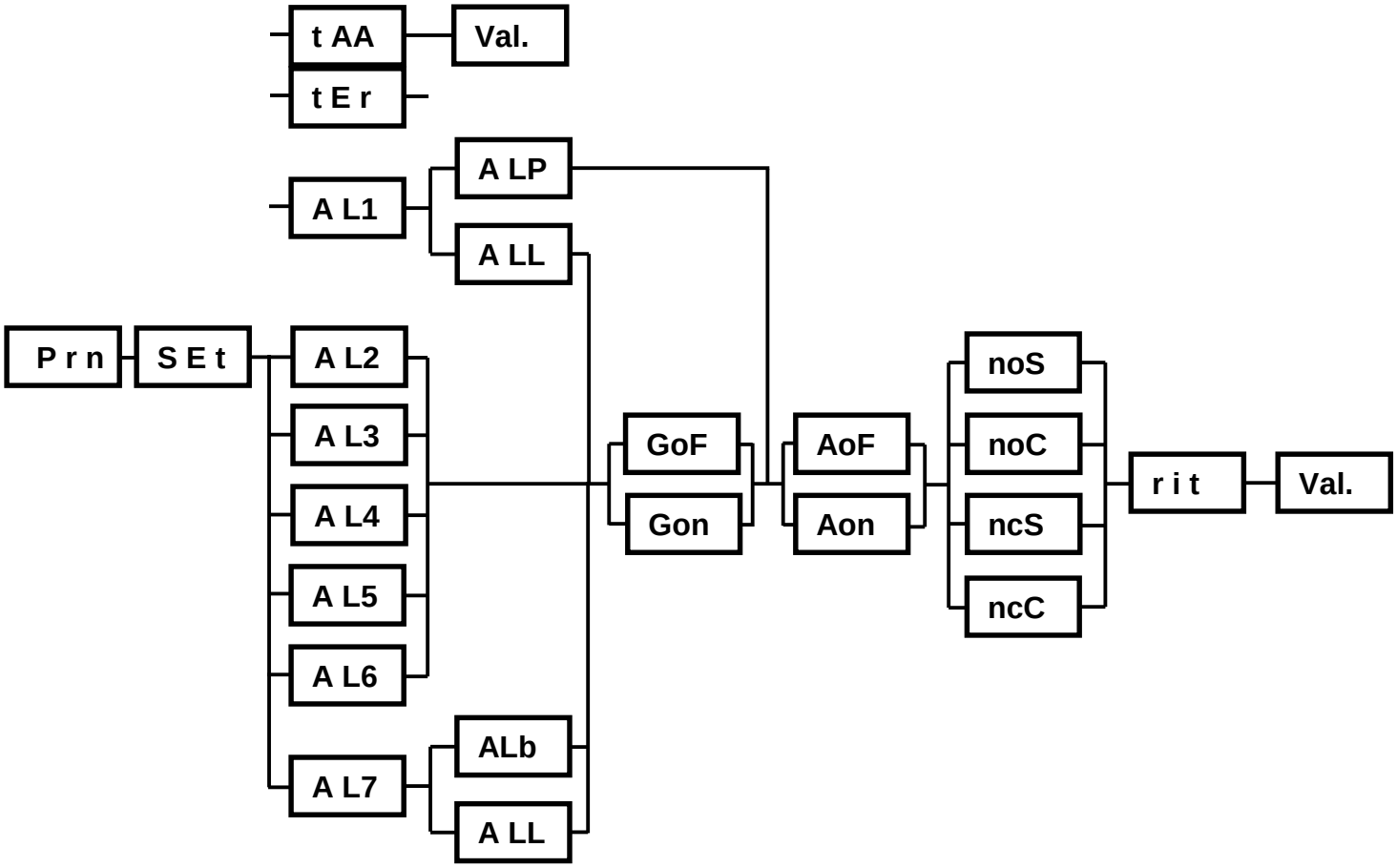
O P 1

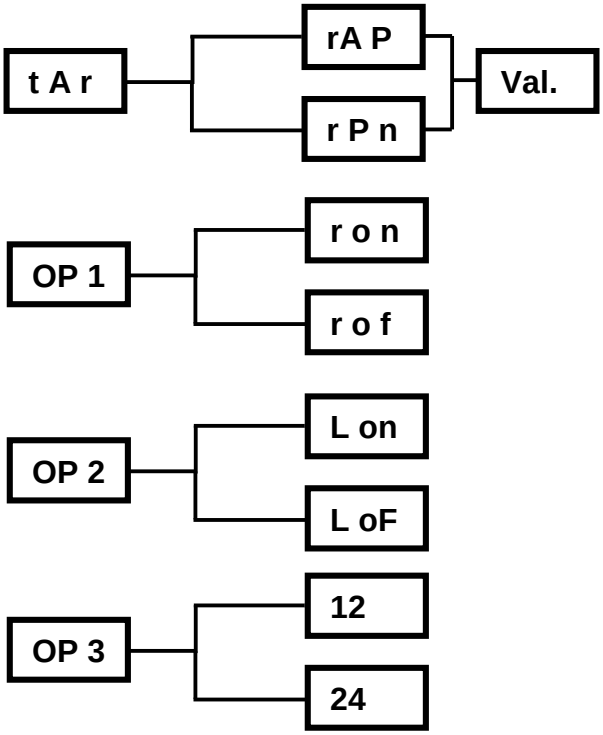
O P 2

O P 3

In regard to set-up scheme (following page), with key (11) user moves from left to right, while with keys (9) and (10) he moves in the vertical sense; to return to main menu press key (8).







LEGEND	
Prn	Parameters setting
tAr	Engine revolutions reading adjustment
OP1/2/3	Options
SEt	Alarms settings
ron/roF	Activated/deactivated engine revolutions measurement
Lon/oF	Activated/deactivated brightness memory (see notes)
12/24	12Vcc o 24Vcc supply voltage
rPn	Engine revolutions; engine revolutions x 10
tAA	Maximum engine stop time
tEr	Engine run delay (see notes)
SoA	Engine revolutions threshold to declare engine running
ALX	Alarm 1,2, … (for AL7 see notes)
rAP	Pulses/revolutions ratio (see notes)
ALP	Low oil pressure alarm
ALL	Generic alarm
ALb	Battery charge input
GoF/Gon	Alarm influenced by engine revolutions presence
Aon/AoF	Activated/deactivated engine stop
noS/C	Alarm contact normally open with/without open line control
ncS/C	Alarm contact normally closed with/without short circuit line control
rit	Alarm delay
So1	Overspeed threshold

Example

If you want to set alarm AL2 as an alarm not influenced by engine state, with engine stop,

normally open contact type with line continuity control, 5 seconds delay:

- Enter set-up by keeping key (11) pressed
- If Prn doesn't appear at once press one or more times key (9) or (10) until Prn appears on the display; press key (11): Set is displayed. Press key (11) again
- press one or more times key (9) or (10) until AL2 appears on the display; press key (11)
- press one or more times key (9) or (10) until GoF (alarm is independent from engine running) appears on the display; press key (11)
- press one or more times key (9) or (10) until Aon (alarm causes the engine stop) appears on the display; press key (11)
- press one or more times key (9) or (10) until noC (normally open contact with line continuity control) appears on the display; press key (11): rit appears; Press key (11) again
- set delay to 5 seconds – 005 – using key (9) and (10)
- press key (11) if you want remain in set-up and change other alarm parameters or
- press key (8) one or more times to return back on the menu; if appears Prn and you press key (8) again you exit from set-up in a right manner.

If you don't exit set-up properly by pressing key (8) more times, performed changes will be lost and the previous ones will remain in memory.

NOTES:

1 - Ratio **r A P** means number of pulses for every engine revolution.

If ratio is known, select **rAP** and set it pressing keys (9) and (10).
If ratio is unknown, select the visualization of engine revolutions **rPn** pressing key (9) or (10) and, once pressed key (11), set the same value read by a precision revolutions counter using keys (9) and (10). Repeat this operation to low, medium and high rate for a more accurate regulation.

Note: If panel dispose of a PINE magnetic pick-up adapter, Ratio (**rAP**) to be set is obtained dividing by 16 the number of crown wheel cogs.

2 – Engine is declared running if engine revolutions exceed **SoA** for a time longer than **t E r**.

3 – At panel turning on the display brightness will be at maximum if the **L o F** option is set. Instead if the **L o n** option is set, display brightness will be as it was set before last turning off.

4 – Remember that the number read during regulation has to be multiplied by 10.

5 – If AL7 is set as battery charge warning lamp, it will not be managed as alarm anymore.

13. ENGINE PLANT ANOMALIES

At turning on and during normal working CM30-GE3B checks set-up settings stored in an

internal memory. If the panel works regularly and it is supplied in a right manner, the "**System ready**" signal is sent to Remote Control. If "System ready" signalling is lacking and in the first display row appears "**Ed**" (data error) followed by a number (indicating the type of internal memory fault), it means that there is some problem in set-up memory read/write process. In this case you can try to enter set-up and verify parameters, restoring the changed ones. Exiting se-up the memory is written again; if "**Ed**" (data error) appears again it is necessary to contact CM30-GE3B supplier in order to repair the panel.
If main or secondary supply isn't present or if there is some panel fault, "System ready" output will not be activated.

RPM measurement:

- In the case an input has been set as low or too low oil pressure alarm, if engine revolutions are below the **SoA** threshold and pressure transducer is not in an alarm condition, CM30-GE3B will signal an "**RPM circuit fault**" even if there should be a pressure transducer fault.

14. CONFORMITY DECLARATION

CE

Manufactures declares that the engine control panel of series CM30 GE3B is in conformity at European requirements of electromagnetic compatibility and of safety with directives 2006/95/EEC (ex 73/23/EEC), 89/336/EEC, 92/31/EEC, 93/68/EEC, 93/97/EEC, EN 60945, and RINA RULES ed. 2007.

15. TECHNICAL SPECIFICATIONS

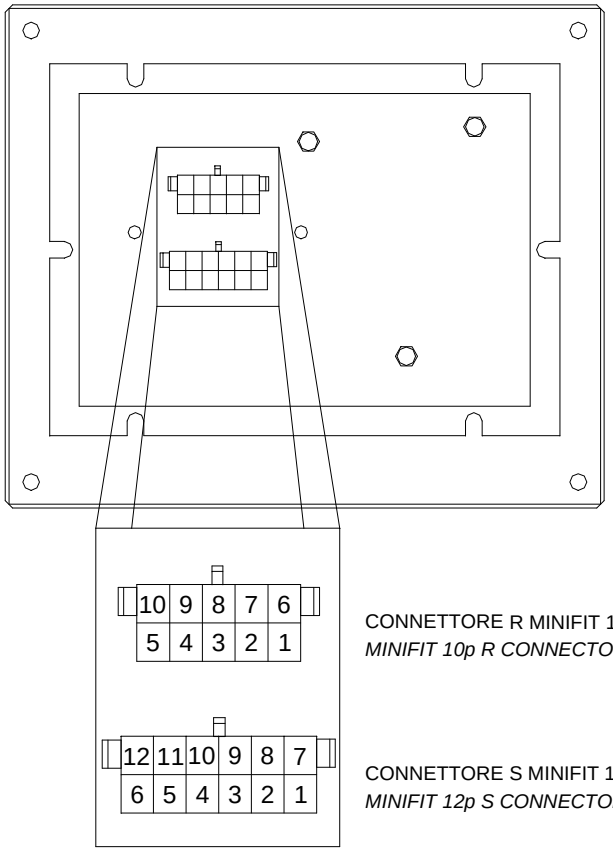
POWER SUPPLY	**MAIN**	Nominal voltage from 12 up to 24Vcc (min 7 max 35Vcc) with "main supply fault" alarm if: option 12V, supply below 7V for more than 20 seconds option 24V, supply below 14V for more than 20 seconds

	SECONDARY	As the main one, without alarm – with recharge circuit if a stop-gap battery is used	
POWER CONSUMPTION (no load)			Less than 10 Watt
PROTECTIONS			Polarity inversion, Battery disconnecting extravoltage (not repetitive).
TEMPERATURE	**WORKING TEMPERATURE**		-25 +55 °C
	STORAGE TEMPERATURE		-30 +80 °C
RELATIVE HUMIDITY			Max 95 %
VISUALIZATION			1 row led display
SIGNALLINGS	WARNING LAMP		7 warning lamps for alarms Stop line fault Common failure
	ACOUSTIC INDICATION		Buzzer output
FREQUENCY INPUT	ENGINE REVOLUTIONS with line continuity control		Alternator "W" (with 10KΩ resistor in parallel)
			PNP PROXIMITY SENSOR
			Pick-up on crown wheel (impedance from 1 up to 20KΩ, Vout from 3 up to 50Vrms) (with PINE adapter)
ALARMS	AL1 AL2 AL3 AL4 AL5 AL6 AL7	INPUTS from N.C. or N.O. type contacts with possible continuity or short circuit control by installing a 10KΩ resistor in parallel or in series to the contact	Open circuit voltage: 5 Vdc Short circuit voltage: 0-2Vdc - 0,5 mA Voltage for continuity/short circuit test, with 10KΩ resistor: 2,5 Vdc
CONTINUITY TEST ELETTROSTOP CONNECTION LINE			Fault if open circuit
REMOTE COMANDS INPUTS	STOP		ACTIVE to positive supply +/- 20% - 5 mA
	DEACTIVATED SECURITIES		ACTIVE to positive supply +/- 20% - 5 mA
REMOTE MUTING INPUT			ACTIVE to positive supply +/- 20% - 5 mA
OUTPUTS	**SHORT CIRCUIT PROTECTED**	ENGINE STOP	Positive supply, Imax = 2A
		ENGINE RUN	Negative supply, Imax = 300 mA
		COMMON FAILURES	Negative supply, Imax = 300 mA
		SYSTEM READY	Negative supply, Imax = 300 mA
		BUZZER (ACOUSTIC SIGNALLING)	Negative supply, Imax = 300 mA
		ALTERNATOR EXCITATION	Positive supply, Imax = 100 mA

MEASURE PRECISIONS
ENGINE RPM: 10 rpm risolution
± 10 rpm precision

SERIE CM30-GE3B :
CM30-GE3B SERIES :

VISTA POSTERIORE
BACK VIEW



CONNETTORE R MINIFIT 10p
MINIFIT 10p R CONNECTOR

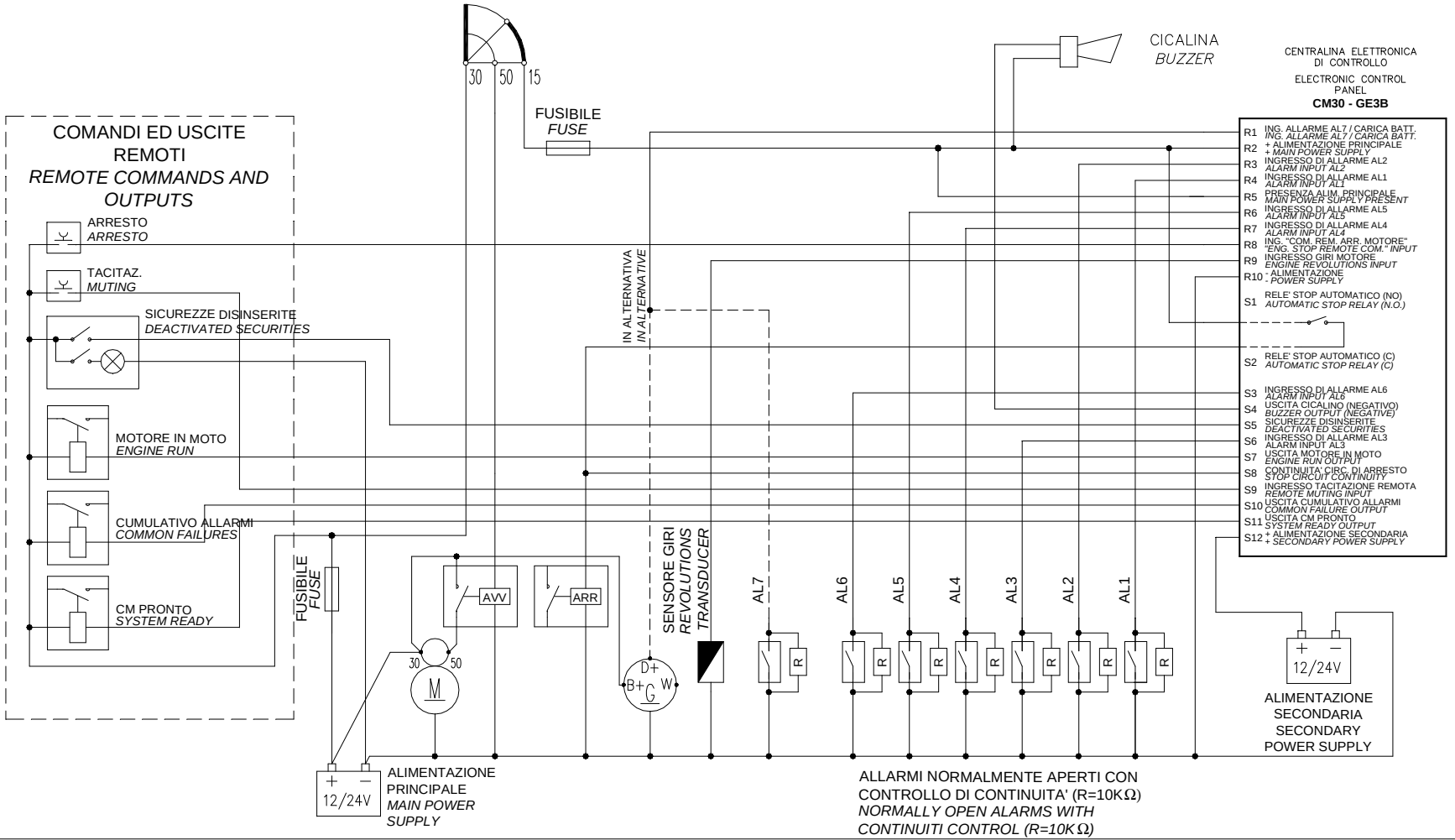
CONNETTORE S MINIFIT 12p
MINIFIT 12p S CONNECTOR

LEGENDA
LEGEND

R1	ING. DI ALLARME AL7 / CARICA BATT. *ALARM INPUT AL7 / BATT. CHARGE*
R2	+ ALIMENTAZIONE PRINCIPALE *+ MAIN POWER SUPPLY*
R3	INGRESSO DI ALLARME AL2 *ALARM INPUT AL2*
R4	INGRESSO DI ALLARME AL1 *ALARM INPUT AL1*
R5	PRESENZA ALIMENTAZIONE PRINCIPALE *MAIN POWER SUPPLY PRESENT*
R6	INGRESSO DI ALLARME AL5 *INPUT ALARM AL5*
R7	INGRESSO DI ALLARME AL4 *INPUT ALARM AL4*
R8	ING. "COM. REM. ARRESTO MOTORE" *"ENGINE STOP REMOTE COM." INPUT*
R9	INGRESSO GIRI MOTORE *ENGINE REVOLUTIONS INPUT*
R10	– ALIMENTAZIONE *– POWER SUPPLY*
S1	RELE' STOP AUTOMATICO (CONTATTO NO) *AUTOMATIC STOP RELAY (N.O. CONTACT)*
S2	RELE' STOP AUTOMATICO (CONTATTO C) *AUTOMATIC STOP RELAY (C CONTACT)*
S3	INGRESSO DI ALLARME AL6 *ALARM INPUT AL6*
S4	USCITA CICALINO (NEGATIVO) *BUZZER OUTPUT (NEGATIVE)*
S5	SICUREZZE DISINSERITE *DEACTIVATED SECURITIES*
S6	INGRESSO DI ALLARME AL3 *ALARM INPUT AL3*
S7	USCITA MOTORE IN MOTO *ENGINE RUN OUTPUT*
S8	CONTINUITA' CIRC. DI ARRESTO *STOP CIRCUIT CONTINUITY*
S9	INGRESSO TACITAZIONE REMOTA *REMOTE MUTING INPUT*
S10	USCITA CUMULATIVO ALLARMI *COMMON FAILURE OUTPUT*
S11	USCITA CM PRONTO *SYSTEM READY OUTPUT*
S12	+ ALIMENTAZIONE SECONDARIA *+ SECONDARY POWER SUPPLY*

RIF. FILE / *FILE REF.* :	DATA / *DATE* :	SCALA / *SCALE* :	DESCRIZIONE / *DESCRIPTION* :	DISEGNATO / *DESIGNED* :	
DSDXG3B01A	05/07/2007		CONNETTORI CENTRALINA ELETTRONICA DI CONTROLLO *ELECTRONIC CONTROL UNIT CONNECTORS*	DA RE L.	PINE s.r.l. Chioggia (VE) - Italy
CODICE / *CODE* :	REV. / *REV.* :	FOGLIO / *SHEET* :		APPROVATO / *APPROVED* :	
DSDXG3B01A	A	D1		PADOAN M.	

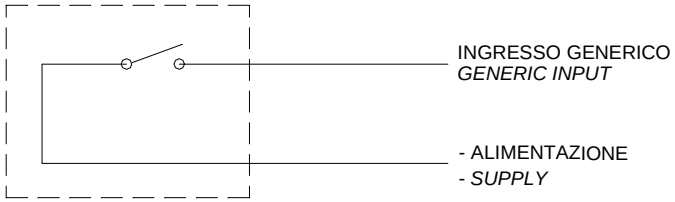
SERIE / *SERIES* CM30 - GE3B


30 50 15
FUSIBILE
FUSE
CICALINA
BUZZER
CENTRALINA ELETTRONICA DI CONTROLLO
ELECTRONIC CONTROL PANEL
CM30 - GE3B
COMANDI ED USCITE REMOTI
REMOTE COMMANDS AND OUTPUTS
ARRESTO
ARRESTO
TACITAZ.
MUTING
SICUREZZE DISINSERITE
DEACTIVATED SECURITIES
MOTORE IN MOTO
ENGINE RUN
CUMULATIVO ALLARMI
COMMON FAILURES
CM PRONTO
SYSTEM READY
IN ALTERNATIVA
IN ALTERNATIVE
FUSIBILE
FUSE
AVV
ARR
30
50
M
D+
B+
G
W
SENSORE GIRI
REVOLUTIONS
TRANSDUCER
AL7
AL6
AL5
AL4
AL3
AL2
AL1
R
R1 ING. ALLARME AL7 / CARICA BATT. / ING. ALLARME AL7 / CARICA BATT.
R2 + ALIMENTAZIONE PRINCIPALE / + MAIN POWER SUPPLY
R3 INGRESSO DI ALLARME AL2 / ALARM INPUT AL2
R4 INGRESSO DI ALLARME AL1 / ALARM INPUT AL1
R5 PRESENZA ALIM. PRINCIPALE / MAIN POWER SUPPLY PRESENT
R6 INGRESSO DI ALLARME AL5 / ALARM INPUT AL5
R7 INGRESSO DI ALLARME AL4 / ALARM INPUT AL4
R8 ING. "COM. REM. ARR. MOTORE" / "ENG. STOP REMOTE COM." INPUT
R9 INGRESSO GIRI MOTORE / ENGINE REVOLUTIONS INPUT
R10 - ALIMENTAZIONE / - POWER SUPPLY
S1 RELE' STOP AUTOMATICO (NO) / AUTOMATIC STOP RELAY (N.O.)
S2 RELE' STOP AUTOMATICO (C) / AUTOMATIC STOP RELAY (C)
S3 INGRESSO DI ALLARME AL6 / ALARM INPUT AL6
S4 USCITA CICALINO (NEGATIVO) / BUZZER OUTPUT (NEGATIVE)
S5 SICUREZZE DISINSERITE / DEACTIVATED SECURITIES
S6 INGRESSO DI ALLARME AL3 / ALARM INPUT AL3
S7 USCITA MOTORE IN MOTO / ENGINE RUN OUTPUT
S8 CONTINUITA' CIRC. DI ARRESTO / STOP CIRCUIT CONTINUITY
S9 INGRESSO TACITAZIONE REMOTA / REMOTE MUTING INPUT
S10 USCITA CUMULATIVO ALLARMI / COMMON FAILURE OUTPUT
S11 USCITA CM PRONTO / SYSTEM READY OUTPUT
S12 + ALIMENTAZIONE SECONDARIA / + SECONDARY POWER SUPPLY
12/24V
ALIMENTAZIONE SECONDARIA SECONDARY POWER SUPPLY
12/24V
ALIMENTAZIONE PRINCIPALE MAIN POWER SUPPLY
ALLARMI NORMALMENTE APERTI CON CONTROLLO DI CONTINUITA' (R=10KΩ)
NORMALLY OPEN ALARMS WITH CONTINUITI CONTROL (R=10KΩ)

RIF. FILE / *FILE REF.* :	DATA / *DATE* :		DESCRIZIONE / *DESCRIPTION* :	DISEGNATO / *DESIGNED* :	
DSDXG3B02A	10/07/2007		ESEMPIO DI CABLAGGIO *ASSEMBLY EXAMPLE*	DA RE L.	PINE s.r.l. Chioggia (VE) - Italy
CODICE / *CODE* :	REV. / *REV.* :	FOGLIO / *SHEET* :		APPROVATO / *APPROVED* :	
DSDXG3B02A	A	D2		PADOAN M.	

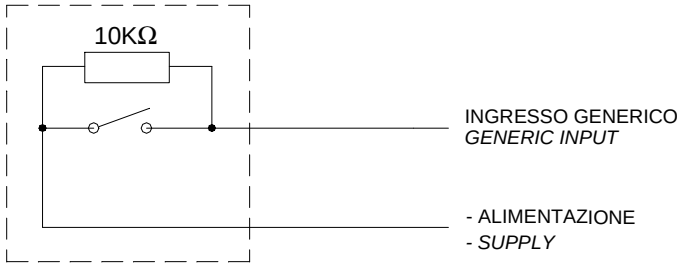
ALLARME NORMALMENTE APERTO
SENZA CONTROLLO DI CONTINUITA'

NORMALLY OPEN ALARM
WITHOUT CONTINUITY CONTROL



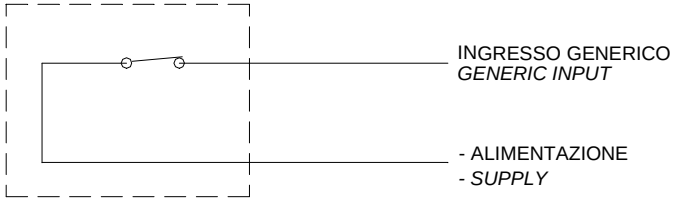
ALLARME NORMALMENTE APERTO
CON CONTROLLO DI CONTINUITA'

NORMALLY OPEN ALARM
WITH CONTINUITYCONTROL



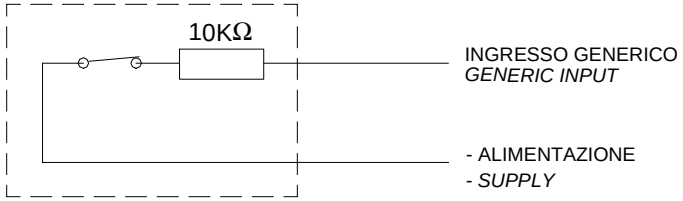
ALLARME NORMALMENTE CHIUSO
SENZA CONTROLLO DI CORTOCIRCUITO

NORMALLY CLOSED ALARM WITHOUT
SHORT CIRCUIT CONTROL



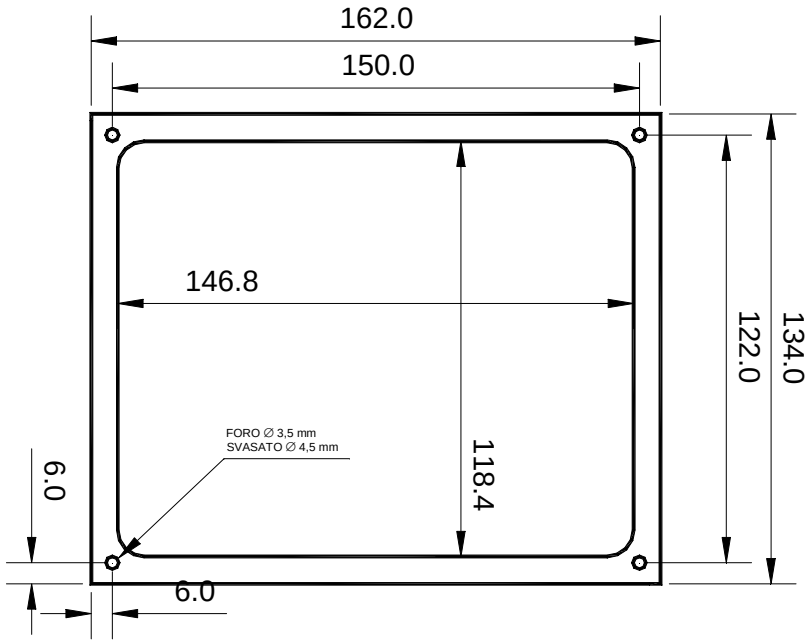
ALLARME NORMALMENTE CHIUSO
CON CONTROLLO DI CORTOCIRCUITO

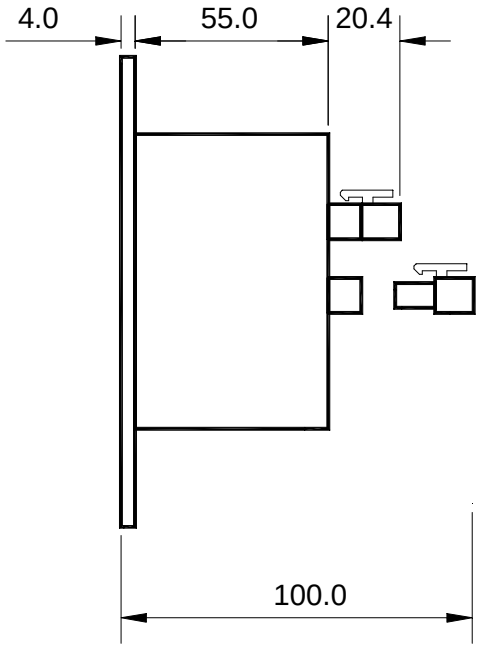
NORMALLY CLOSED ALARM WITH
SHORT CIRCUIT CONTROL



RIF. FILE / *FILE REF.* :	DATA / *DATE* :	SCALA / *SCALE* :	DESCRIZIONE / *DESCRIPTION* :	DISEGNATO / *DESIGNED* :	
DSDXG3B03A	14/09/2007		SCHEMA DI COLLEGAMENTO DEGLI ALLARMI	DA RE L.	PINE s.r.l.
CODICE / *CODE* :	REV. / *REV.* :	FOGLIO / *SHEET* :	*ALARMS CONNECTION SCHEME*	APPROVATO / *APPROVED* :	Chioggia (VE) - Italy
DSDXG3B03A	A	D3		PADOAN M.	

SERIE / *SERIES* CM30 - GE3B (D4)





RIF. FILE / *FILE REF.* :	DATA / *DATE* :	SCALA / *SCALE* :	DESCRIZIONE / *DESCRIPTION* :	DISEGNATO / *DESIGNED* :	
DSDXG3B04A	11/07/2007		DIME DI FORATURA - DIMENSIONI *CUTTING EDGE - SIZE*	DA RE L.	PINE s.r.l. Chioggia (VE) - Italy
CODICE / *CODE* :	REV. / *REV.* :	FOGLIO / *SHEET* :		APPROVATO / *APPROVED* :	
DSDXG3B04A	A	D4		PADOAN M.	

PINE s.r.l.
SISTEMI ELETTRONICI
Sede legale : Via P. E. Venturini, 56 - 30015 Chioggia (VE) - Italia
Sede operativa : Via D. Schiavo, 181 - 30019 Sottomarina (VE) - Italia
Telefono +39.041.55.44.862 – Tel / Fax +39.041.55.43.194